GERMANIUM MESA PNP

AF 106

VHF MIXER/OSCILLATOR

The AF 106 is a germanium mesa PNP transistor in a Jedec TO-72 metal case. It is particularly designed for use as preamplifier mixer and oscillator up to 260 MHz.

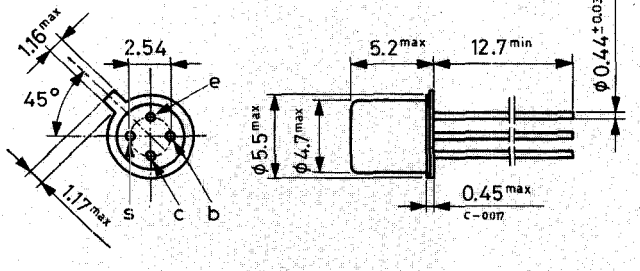
ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	-25 V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-18 V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	-0.3 V
I_C	Collector current	-10 mA
P_{tot}	Total power dissipation at $T_{amb} \leq 45$ °C	60 mW
	at $T_{case} \leq 66$ °C	60 mW
T_{stg}	Storage temperature	-30 to 75 °C
T_j	Junction temperature	90 °C

MECHANICAL DATA

Dimensions in mm

Shield lead connected to case



TO-72

AF 106

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	400	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	750	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current (I_E = 0)	V_{CB} = -12 V			-10	μA
$V_{(BR)\ CBO}$	Collector-base breakdown voltage (I_E = 0)	I_C = -100 μA	-25			V
$V_{(BR)\ CEO}$	Collector-emitter breakdown voltage (I_B = 0)	I_C = -500 μA	-18			V
$V_{(BR)\ EBO}$	Emitter-base breakdown voltage (I_C = 0)	I_E = -100 μA	-0.3			V
V_{BE}	Base-emitter voltage	I_C = -1 mA V_{CE} = -12 V I_C = -2 mA V_{CE} = -6 V	-0.25 -0.28	-0.325 -0.34	-0.38 -0.4	V V
h_{FE}	DC current gain	I_C = -1 mA V_{CE} = -12 V I_C = -2 mA V_{CE} = -6 V	20	50 70		— —
f_T	Transition frequency	I_C = -1 mA V_{CE} = -12 V f = 100 MHz		220		MHz
$-C_{re}$	Reverse capacitance	I_C = -1 mA V_{CE} = -12 V f = 450 kHz		0.45		pF
NF	Noise figure	I_C = -1 mA V_{CE} = -12 V R_g = 60 Ω f = 200 MHz		5.5	7.5	dB
$r_{bb'}$, $C_{b'c}$	Feedback time constant	I_C = -1 mA V_{CE} = -12 V f = 2.5 MHz		6		ps
G_{pb}	Power gain	I_C = -3 mA V_{CB} = -10 V R_L = 920 Ω f = 200 MHz	14	17.5		dB